

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

Form PTO-1449 (Modified)
(Use several sheets if necessary)

COMPLETE IF KNOWN

Application Number	09/811,925
Confirmation Number	1111
Filing Date	March 19, 2001
First Named Inventor	Eric J. BERGMAN
Group Art Unit	1746
Examiner Name	Z. El Arini
Attorney Docket No.	54008.8012.US01

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Sheet 1 of 4

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.	U.S. Patent or Application		Name of Patentee or Inventor of Cited Document	Date of Publication or Filing Date of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		NUMBER	Kind Code (if known)			
ZE	AA	5,055,138		Slinn	10/08/91	
ZE	AB	5,120,370		Mori et al.	06/09/92	
ZE	AC	5,647,386		Kaiser	07/15/97	
ZE	AD	5,503,708		Koizumi et al.	04/02/96	
ZE	AE	5,308,745		Schwartzkopf	05/03/94	
ZE	AF	4,695,327		Grebinski	09/22/87	
ZE	AG	5,632,847		Ohno et al.	05/27/97	
ZE	AH	5,911,837		Matthews	06/15/99	
ZE	AI	5,705,089		Sugihara et al.	01/06/98	
ZE	AJ	5,244,000		Stanford et al.	09/14/93	
ZE	AK	5,896,875		Yoneda	04/27/99	
ZE	AL	4,974,530		Lyon	12/04/90	
ZE	AM	5,120,370		Mori et al.	06/09/92	
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ZE	AO	5,248,380		Tanaka	09/28/93	
ZE	AP	5,520,744		Fujikawa et al.	05/28/96	
ZE	AQ	5,415,191		Mashimo et al.	05/16/95	
ZE	AR	5,658,615		Hasebe et al.	08/19/97	
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ZE	AT	5,971,368		Nelson et al.	10/26/99	
ZE	AU	5,234,540		Grant et al.	08/10/93	
	AV	5,803,982		Kosofsky et al.	09/08/98	
ZE	AW	5,944,907		Ohmi	08/31/99	
ZE	AX	5,232,511		Bergman	08/03/93	
ZE	AY	5,776,296		Matthews	07/07/98	
	AZ	6,249,933		Berfield	06/26/01	
ZE	BA	6,267,125		Bergman et al.	07/31/01	
ZE	BB	6,273,108		Bergman et al.	08/14/01	
ZE	BC	6,146,469		Toshima	11/14/00	
ZE	BD	4,917,123		McConnell et al.	04/17/90	
ZE	BE	4,749,440		Blackwood et al.	06/07/88	
ZE	BF	4,817,652		Liu	04/04/89	
ZE	BG	5,571,367		Nakajima et al.	11/05/96	
ZE	BH	5,063,609		Lorimer	11/05/91	
ZE	BI	5,246,526		Yamaguchi et al.	09/21/93	
ZE	BJ	5,372,651		Kodama	12/13/94	

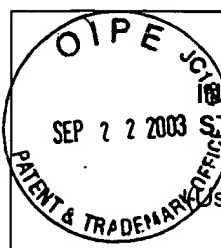
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EL-Arini

DATE CONSIDERED

10/22/03

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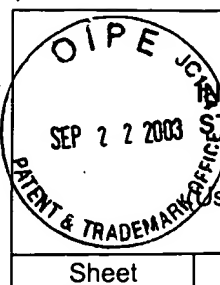
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		Office	NUMBER	Kind Code (if known)				
ZE	BK	JP	4-302144	✓	Hitachi, Ltd.	10/26/1992		
ZE	BL	EP	0 782 177 A2	✓	Texas Instruments Incorporated	07/02/1997		
ZE	BM	JP	H03-208900	✓	Susumu Otsuka et al.	09/12/1991		
ZE	BN	JP	H04-298038	✓	Hitachi Cable, Ltd.	10/21/1992		
ZE	BO	JP	S61-004232	✓	Yukinobu Tanno et al.	01/10/1986		
ZE	BP	JP	62-117330	✓	Toshio Wada et al.	05/28/1987		
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ZE	BW	JP	05-283389	✓	NEC Corp.	10/29/1993		
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ZE	BY	JP	06-204130	✓	Mitsubishi Electric Corp.	07/22/1994		
ZE	BZ	JP	04-302145	✓	Hitachi Ltd.	10/26/1992		
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ZE	CB	JP	05-259139	✓	Hitachi Ltd.	10/08/1993		
ZE	CC	JP	05-109686	✓	Nippon Steel Corp.	04/30/1993		
ZE	CD	JP	63-110732	✓	NEC Corp.	05/16/1988		

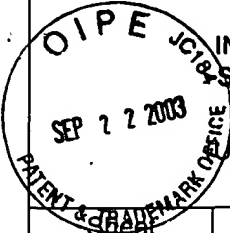
OTHER PRIOR ART-NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume issue number(s), publisher, city and/or country where published.	T
ZE	CE	Abstract of JP 3041729 published 2/22/91.	
ZE	CF	Heyns, M.M., et al. "New Wet Cleaning Strategies for Obtaining Highly Reliable Thin Oxides," MRP Symposium Proceedings on Materials Research Society, Spring Meeting, San Francisco, CA April 12-13, 1993, p. 35 (1993)	
ZE	CG	Adler, Marilyn Grace and Hall, George Richard, "The Kinetics and Mechanism of Hydroxide Ion Catalyzed Ozone Decomposition in Aqueous Solution" <i>J. Am. Chem. Soc.</i> , Volume 72, pp. 1884-86, 1950.	
ZE	CH	Nelson, Steve, "Ozonated water for photoresist removal" <i>Solid State Technology</i> , pp. 107-112 (July 1999)	
ZE	CI	Christenson, Kurt K., et al. "Deionized Water Helps Remove Wafer Stripping 'Resist'-ance," <i>www.precisioncleaningweb.com - Precision Cleaning Web - Archives</i> , pp. 10-20 (April 1998)	
ZE	CJ	Sehested, K., et al., "Decomposition of Ozone in Aqueous Acid Solutions (pH 0-4)," <i>J. Phys. Chem.</i> , pp. 1005-1009 (1992)	

EXAMINER <div style="font-size: 1.5em; font-family: cursive; margin-top: 10px;">EL-Arini</div>	DATE CONSIDERED <div style="font-size: 1.5em; font-family: cursive; margin-top: 10px;">10/22/03</div>
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ZE	CK	Krusell, W.C. et al., "Cleaning Technology for High Volume Production of Silicon Wafers," <i>ECS Proc. of the First Int'l. Symposium on Cleaning Technology I Semiconductor Device Mfg.</i> , pp. 23-32 (October 1989)		
	CL	Vig, John R., "UV/Ozone Cleaning of Surfaces," <i>U.S. Army Elec. Tech. and Devices Lab.</i> , pp. 1-26		
	CM	Vig, John R., "UV/Ozone Cleaning of Surfaces: A Review," <i>Surface Contamination: Genesis, Detection, and Control</i> , pp. 235-253(1979)		
	CN	Tong, Jeremy, et al., "Aqueous Ozone Cleaning of Silicon Wafers," <i>ECS Extended Abstracts, Phoenix, AZ</i> , Abstract No. 506, pp. 753 (October 13-17, 1991)		
	CO	Zafonte, Leo, et al., "UV/Ozone Cleaning For Organics Removal on Silicon Wafers," <i>SPIE Optical Microlithography III: Technology for the Next Decade</i> , Vol. 470, pp. 164-175 (1984)		
	CP	Baumgärtner, H., et al., "Ozone Cleaning of the SI-SiO ₂ System," <i>Appl. Phys. A</i> , Vol. 43, pp. 223-226 (1987)		
	CQ	Isagawa, Tatsuhiko, et al., "Ultra Clean Surface Preparation Using Ozonized Ultrapure Water," <i>Extended Abstracts of the 1982 Int'l. Conf. on Solid State Devices and Materials</i> , pp. 193-195 (1992)		
	CR	Shimada, H., et al., "Residual-Surfactant-Free Photoresist Development Process," <i>J. Electrochem., Soc.</i> , 139(6):1721-1730 (June 1992)		
	CS	Tong, Jeremy K. et al., "Aqueous Ozone Cleaning of Silicon Wafers," <i>Proc. of 2nd Int'l. Symposium on Cleaning Tech. In Semiconductor Device Mfg.</i> , pp. 18-25 (October 1992)		
	CT	Tong, Jeremy K., et al., "Aqueous Ozone Cleaning of Silicon Wafers," <i>Res. Soc. Symp.</i> , pp. 18-25 (1993)		
	CU	Ohmi, T., et al., "Native Oxide Growth and Organic Impurity Removal on Si Surface with Ozone-Injected Ultrapure Water," <i>J. Electrochem. Soc.</i> , 140(3):804-810 (March 1993)		
	CV	Vig, John R., et al., "UV/Ozone Cleaning of Surfaces," <i>IEEE Transactions on Parts, Hybrids, and Packaging</i> , Vol. PHP-12(4):365-370 (December 1976)		
	CW	Vig, John R., "UV/ozone cleaning of surfaces," <i>U.S. Army Electronics Technology and Devices Laboratory, ERADCOM, Ft. Monmouth, NJ, 07703-5302</i> , pp. 1027-1034 (September/October 1984)		
	CX	Tabe, Michiharu, "UV ozone cleaning of silicon substrates in silicon molecular beam epitaxy," <i>Appl. Phys. Lett.</i> , 45(10):1073-1075 (November 1984)		
	CY	Zazzera, L.A., et al., "XPS and SIMS Study of Anhydrous HF and UV/Ozone-Modified Silicon (100) Surfaces," <i>J. Electrochem. Soc.</i> , 136(2):484-491 (February 1989)		
CZ	Gabriel, Calvin, et al., "Reduced Device Damage Using An Ozone Based Photoresist Removal Process," <i>SPIE Advances in Resist Technology and Processing VI</i> , Vol. 1086, pp. 598-604 (1989)			
DA	Suemitsu, Maki, et al., "Low Temperature Silicon Surface Cleaning by HF Etching/Ultraviolet Ozone Cleaning (HF/UVOC) Method (I) -Optimization of the HF Treatment-", <i>Japanese Journal of Applied Physics</i> , 28(12):2421-2424 (December 1989)			
ZE	DB	Kern, Werner, "The Evolution of Silicon Wafer Cleaning Technology," <i>J. Electrochem. Soc.</i> , 137(6):1887-1892 (June 1990)		

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ZE	DC	Kasi, S.R., et al., "Surface Hydrocarbon Removal from Si by UV/Ozone," <i>ECS Extended Abstracts</i> , No. 458, pp. 691-692 (199)		
	DD	Kasi, Srinandan R., et al., "Vapor phase hydrocarbon removal for Si processing," <i>Appl. Phys. Lett.</i> , 57(20):2095-2097 (November 1990)		
	DE	Huynh, Cuc K., et al., "Plasma versus ozone photoresist ashing: Temperature effects on process-induced mobile contamination," <i>J. Vac. Sci. Technol.</i> , B9(2):353-356 (Mar/Apr 1991)		
	DF	Bedge, Satish, et al., "Kinetics of UV/O ₂ Cleaning and Surface Passivation Experiments and Modeling," <i>Mat. Res. Soc. Symp. Proc.</i> , Vol. 259, pp. 207-212 (1992)		
	DG	Goulding, M.R., "The selective epitaxial growth of silicon," <i>Materials Science and Engineering</i> , Vol. B17, pp. 47-67 (1993)		
	DH	Ganesan, Gans S., et al., "Characterizing Organic Contamination in IC Package Assembly," <i>The Int'l. Soc. for Hybrid Microelectronics</i> , Vol. 17, #2, Second Quarter, pp. 152-160 (1994)		
	DI	Egitto, F.D., et al., "Removal of Poly(Dimethylsiloxane) Contamination From Silicon Surfaces With UV/Ozone Treatment," <i>Mat. Res. Soc. Symp. Proc.</i> , Vol. 385, pp. 245-250 (1995)		
	DJ	Amick, J.A., "Cleanliness and the Cleaning of Silicon Wafers," <i>Solid State Technology</i> , pp. 47-52 (November 1976)		
	DK	Bolon, D.A., et al., "Ultraviolet Depolymerization of Photoresist Polymers," <i>Polymer Engineering and Science</i> , 12(2):108-111 (March 1972)		
	DL	Krusell, W.C., et al., "The Characterization of Silicon Substrate Cleaning Treatments by use of SIMS and MOS Electrical Testing," <i>ECS Extended Abstracts</i> , No. 229, p. 331-332 (1986)		
	DM	Anantharaman, Ven, Ph.D., et al., "ORGANICS: Detection and Characterization of Organics in Semiconductor DI Water Processes," <i>Ultrapure Water</i> , pp. 30-36 (April 1994)		
	DN	"Ozone Concentration Measurement In A Process Gas," <i>Proposed IOA Pan American Group Guideline</i> , pp. 1-21 (December 1993)		
	ZE	DO	"Ozone for Semiconductor Applications," <i>Sorbios</i> , pp. 1-6 (October 1991)	

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